

XII. *Note regarding Delias sanaca, Moore, a Western Himalayan Butterfly.* By LIONEL DE NICÉVILLE, F.L.S., C.M.Z.S., &c.

[Read April 3rd, 1889.]

ON page 161 of the 'Annals and Magazine of Natural History,' fifth series, vol. xvii., 1886, it will be found that I have given expression to the opinion that there are three good species of the genus *Delias* allied to *belladonna*, Fabricius, viz.:—" *D. belladonna*, West China to Kulu; *D. sanaca*, Western Himalaya; *D. belucha*, Beluchistan." I wrote the latter name from memory; it should be *D. flavalba*, Marshall, from Kunawar.*

I have lately had reason to modify this view; when I wrote the above I had but a single specimen of *D. sanaca* before me. Through the kindness of Mr. P. W. Mackinnon I have received fourteen males and five females of *D. flavalba* and *D. sanaca* from Masuri; and I have also before me six males of these two species also from Masuri, and five males and one female of *D. flavalba* (which constitute the type specimens of that species) from Kunawar, contained in the collection of Colonel A. M. Lang, R.E., captured by himself many years ago. As regards these latter specimens, Colonel Lang in discriminating them, and Major Marshall in describing them as distinct species, were quite justified; though both the Masuri and Kunawar groups of specimens are very variable in the amount of black markings they exhibit on both surfaces, there is no connecting link between them. My fresh specimens from Masuri supply this link. When arranged in a graduated series from the lightest-marked specimen to the darkest, at no point can you draw the line dividing them into two species. Regarding these specimens, Mr. Mackinnon (who is an old collector, and has known the

* Proc. Zool. Soc. Lond., 1882, page 759.

species in life for many years) writes me:—"I am sending you ten more [*D. sanaca*] of five different shades as near as I can manage. I am sure the dark and light-coloured ones belong to the same species, as I got dozens of all shades in *one* place, and in *one* forenoon; they were all chasing each other, at times six or seven together. Mr. Angus Campbell has also captured some of them in Masuri, where it is not *very* rare: he got them on the flowers of the horse-chestnut in May. Mine were all caught on open spaces in forests of the Mouroo Oak, *Quercus dilatata*. [Ticketed Nag Tiba, near Masuri, 8500 feet, latter half of May and beginning of June, and Tehri Gurhwal, near Masuri, 8500 feet, 10th to 20th June.] I have seen them *often* in Masuri, but captured them very seldom." I should remark of the female from Masuri, that none of them are as light-coloured as the palest male specimen of *D. flavalba*; in fact they vary too, but not as much as the males, the lightest specimens equal *D. flavalba* (type female), the darkest equal *D. sanaca*.

Major Marshall writes me on the subject:—"I am returning to-day your paper on *T. belladonna*. I think you are right in the matter. I would never have separated *D. flavalba* unless I had believed it to be confined to the dry western zone of the Himalayas, where the climate is that of Kunawar. Its occurrence at Masuri makes it climatically and geographically inseparable, though of course climate has a large effect in producing the prevalence of black or of white in the coloration of butterflies."

I will now leave the matter, only adding that it is more than probable that there is only one species of this group, *D. belladonna*, and that to prove it, it is only necessary to bring sufficiently large material together to connect all the described forms, of which I give a list below:—

- D. belladonna*, Fabricius, habitat of typical specimens unknown, probably occurs in Western China.
- D. ithiela*, Butler, described from Penang, but occurs in Sikkim and Assam.
- D. berinda*, Moore, figured on plate xii., vol. 1, of Waterhouse's 'Aid,' occurs in the Khasia Hills, probably a synonym of the last.

- D. hearseyi*, Butler, described from Barrackpore! True habitat unknown.*
D. boyleæ, Butler, Sikkim.
D. horsfeildi, Gray, Nepal.
D. sanaca, Moore, Western Himalaya, but recorded by Mr. Moore in Cat. Lep. Mus. E. I. Co., from Darjeeling!†
D. flavalba, Marshall, Kunawar.

[I must apologise both to Mr. de Nicéville and to the Society for the delay in the publication of this note, which was sent to me just as I was leaving England last year. As Mr. de Nicéville asked me to make any comment upon it which might seem useful, I may now say that his views entirely concur with my own as expressed in the 'Annals of Natural History,' and in this Society's 'Transactions' of last year.

But I do not think it can be any longer doubtful that whatever views may be still held as to the specific distinctness of *D. ithiela*, Butler, and *D. sanaca*, Moore, from *D. belladonna*; *D. berinda*, Moore, is a synonym of *ithiela*, whilst *D. boyleæ* and *D. hearseyi*, Butler, are both synonyms of *horsfeildi*. As I have now had an opportunity of seeing a large number of *belladonna* collected near Ichang, in China, by Mr. Pratt, which are in Mr. Leech's collection, I may further add that they have the broad yellow abdominal patch and white inner margin on the hind wing of *horsfeildi*, with something of the duller black and less white markings of *ithiela*; but they may be distinguished from Himalayan forms, in common with my specimens from Tsekou, in South-east Tibet, by the more elongated spots on the under side.

In this case, as in many others, the light which is thrown on the question by increased numbers of specimens from fresh localities, all goes to prove that a very wide range tends to produce variation; and that the greater our knowledge of wide-ranging and variable species, the greater becomes our difficulty in defining the varieties.—H. J. ELWES.]

* Almost certainly from Sikkim.

† This is a mistake. It is the form known as *horsfeildi* which occurs in Sikkim.—H. J. E.